REMARKS/ARGUMENTS

Claims 1-21 are currently pending in the application. Applicants have canceled claim 12 in the present amendment. Claims 1-11 and 13-21 are examined in the present Office Action. Applicants expressly reserve the right to file divisional applications or take such other appropriate measures deemed necessary to protect the inventions in the withdrawn claims. Claims 1, 4, 9, 11, 13 and 17 have been amended. Support for the amendments to the above-referenced claims can be found, for example, in the original claims and on pages 27-43 of the specification as originally filed. No new matter has been added by way of amendment. Applicants respectfully request reconsideration of the claims in view of the following remarks.

Detailed Action

A. Election

The Examiner acknowledges Applicants elections, with traverse, of Group I, claims 1-11 and 13-21. The Examiner further states that the Applicants previous argument is not found persuasive because "the two groups define independent and distinct inventions for the reasons set forth in the last Office Action". The Examiner states the requirement is deemed proper and is made final. Claim 12 is acknowledged as withdrawn. The right to pursue examination of the non-elected polypeptide sequences is reserved.

B. Sequence Listing and Drawings

The Examiner acknowledges Applicant's CRF and paper sequence listing of 04/30/02 as entered. The Examiner states the "sequence on page 71, lines 25-26, of the specification does not comply with sequence rule 1.801-1.809 because the sequence lacks SEQ ID NO:". The Examiner states that Applicants must submit a new CRF and paper copy of the Sequence Listing to include the sequence on page 71.

Applicants respectfully submit the sequence on page 71, lines 25-26 is appropriately designated in the specification as SEQ ID NO 3: on page 71, line 24 and within the Sequence Listing submitted on 04/30/02 as the same. Applicants have amended the specification to read --SEQ ID NO: 3--. Applicants therefore submit the Sequence Listing does comply with 37 C.F.R. §§1.821-1.824 and respectfully request the objection be withdrawn.

The Examiner also objects to the drawings as "no figures are labeled as 8 and 9 in the drawings".

Applicants have now amended the specification on page 9 to refer to the drawings submitted as Figures 8a and 8b and Figures 9a - 9f, respectively, as specified in the submitted drawings, thereby alleviating this objection.

C. Specification

The Examiner has objected to the specification on page 72, line 7, for citing a hyperlink directed to an Internet address.

Applicants have now amended the specification on page 72, line 7, thereby complying with MPEP §608.01. Applicants respectfully request that the objection be withdrawn.

Claim Objections

The Examiner has proposed several editorial changes to the claim language of claims 1, 4, 9 and 11. Applicants note with appreciation the proposed changes that clarify and refine the related claims. Amendments have been made to claims 1, 4, 9 and 11 to reflect the changes the Examiner suggested, thus alleviating the objections.

Claim Rejections Under 35 U.S.C. §112, Second Paragraph

The Examiner has rejected claims 1-11 and 13-21 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regard as the invention.

The Examiner rejects claim 1 as indefinite for "failing to recite the specific hybridization and wash conditions required for the claimed 'stringent hybridization' conditions". Further, dependent claims 2-11 are included in the rejection because they do not obviate the rejection.

Applicants respectfully traverse. As a common guideline, the Examiner is required to read the claims in view of the specification. See e.g. *Allen Archery Inc. v. Browning Mfg. Co.*, 819 F.2d 1087, 2 USPQ2d 1490, 1494 (Fed. Cir. 1987); and MPEP §608.01(o) (8th ed.). When read in view of the instant specification, it is evident that the recitation "stringent hybridization conditions" is amply definite and clear for the claimed invention.

Applicants further assert the original claim 1, which requires high stringency hybridization and wash conditions, when read in light of the specification, reasonably apprises those skilled in the art both of the utilization and scope of the invention, and defines the wash that governs the specificity (page 42, lines 12-17).

Therefore, it is respectfully requested the Examiner withdraw this ground of rejection. Although not acceding to the Examiner's rejections, Applicants have now amended claim 1 to eliminate parts (c) and (d), thus alleviating this rejection. Withdrawal to rejections of claims 2-11 is also respectfully requested because claim 1 is definite and this recitation is embodied in the dependent claims.

Claim 1 and 11 are rejected in the recitation of "using primers" and "using GAP," respectively, as indefinite.

Applicants respectfully traverse this rejection. Although not acceding to the Examiner's rejections, Applicants have now amended claim 1 to eliminate parts (c) and (d), thus alleviating this rejection.

Applicants further refute the Examiner's rejection of claim 11 for being indefinite by the use of the phrase "using GAP." Applicants disclosed in great detail about the use of the Global Alignment Program on pages 25-26 of the instant specification. Pertinent prior art in the use of the GAP algorithm was also disclosed. One of ordinary skill in the art would know that this is a way to describe sequence similarity between sequences in question. Applicants respectfully request that the Examiner withdraw this ground of rejection.

The Examiner rejects claim 2 for being indefinite because the Examiner found that "a member of claim 1" lacked proper antecedent basis. The Examiner pointed out that claim 1 was directed to an isolated polynucleotide.

Applicants have amended the instant claim to address this concern by changing the claim language to --the polynucleotide of claim 1--, thereby alleviating this rejection.

Claim 8 stands rejected as indefinite in the recitation of "inducing expression" because expression is a natural biological phenomenon, not an act of man.

Applicants respectfully traverse this rejection. Applicants are unsure about this ground of rejection. Claim 8 of the instant application is "A seed from the transgenic plant of claim 4". Applicants request this rejection be withdrawn.

The Examiner rejects claims 13 and 17 as being indefinite for lacking correlation between the preamble and the last method step.

Applicant has amended the above-identified claims to correlate the preamble and the last method step.

Claims 15 and 19 stand rejected as being indefinite in the recitation of "Sus1, Sus3 and Sh1" which are not art-recognized terms.

Applicants respectfully traverse. First, these terms are well recognized by ones skilled in the pertinent art of plant molecular biology. For the purpose of defining and pointing out the invention, Applicants have supplied explanations for such short-hand terms in the instant specification. Sh1 is defined as shrunken-1 and Sus1 as sucrose synthase 1 on page 2, line 26. Page 7, line 8 supplies the full

name of Sus3 as sucrose synthase 3. Due to the inventors being allowed to act as their own lexicographer, Applicants request that the Examiner withdraw this ground of rejection. *See Lear Siegler, Inc. v. Aeroquip Corp.*, 221 USPQ 1025, 1031 (Fed. Cir. 1984).

In light of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §112, second paragraph.

Claim Rejections Under 35 U.S.C. §112, First Paragraph

Enablement

Claims 1-11 and 13-21 stand rejected under 35 U.S.C. §112, first paragraph. The Examiner acknowledges that the specification is enabling for the isolated polynucleotide of SEQ ID NO: 1 or 11 encoding a polypeptide with sucrose synthase activity, a recombinant expression cassette, host cells, and transgenic plants/seed comprising said polynucleotide and a method of producing said transformed plants. However, the Examiner states that the specification does not provide enablement for any polynucleotide having at least 80% sequence identity to SEQ ID NO: 1 or 11, a polynucleotide amplified from *Zea mays* nucleic acids using primers that selectively hybridize to loci within SEQ ID NO: 1 or 11, a polynucleotide which selectively hybridizes under specified hybridization conditions to SEQ ID NO: 1 or 11, a complementary polynucleotide thereof, and a polynucleotide having at least 50 contiguous bases thereof, each encoding a polypeptide having sucrose synthase activity and methods that employ said polynucleotides.

Without conceding to the Examiner's argument, Applicants have amended claim 1 to eliminate parts (c), (d) and (g) which embodies a polynucleotide using primers, a polynucleotide under high stringency hybridization conditions and a wash and a polynucleotide having at least 50 contiguous bases. With regard to the rest of the enablement issues pertaining to claim 1, Applicants respectfully traverse.

The Examiner contends that Applicants do not teach expression of polynucleotides of the invention in a transgenic plant.

Applicants assert that the specification does disclose in great detail about the expression of such polynucleotides in a transgenic plant on pages 51-58, under the headings of "Introduction of Nucleic Acids into Host Cells", "Transgenic Plant Regeneration", "Modulating Polypeptide Levels and/or Composition", and "UTRs and Codon Preference". Disclosure on expression of transgenes in monocot cells, dicot cells, and microbial cells is made in Examples 5, 6, and 7, respectively. Further, in an effort to expedite prosecution Applicants have amended the claims to require a substantial portion of the structure, 95% sequence identity, with the claimed sequences. In view of the above disclosure and amended claims, it should be evident that the instant specification provides enablement of expression of the polynucleotides of the present invention.

The Examiner further states that there are no working examples of transgenic plants with increased sucrose synthase concentration in plant tissues.

Under the heading of "Modulating Polypeptide Levels and/or Composition" on pages 56-57, Applicants disclose methods for increasing or decreasing concentrations of the polypeptides by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, or 90% relative to a native control plant, plant part, or cell lacking a recombinant expression cassette. When the inventor could easily represent his contemplated best mode by a preferred range of conditions, a specific working example is not required to be disclosed in the application if none exists. *See In re Honn*, 364 F.2d 454, 150 USPQ 652 (C.C.P.A. 1966). Further, Applicants submit that a working example is not the proper standard by which enablement is to be measured, there is no requirement for any working example in 35 U.S.C. §112, first paragraph, see MPEP §2164.02, "[c]ompliance with the enablement requirement of 35 U.S.C. §112, first paragraph, does not turn on whether an example is disclosed".

The Examiner also voiced concerns that Applicants did not provide guidance for isolating polynucleotides other than SEQ ID NO: 1 and 11 encoding a

polypeptide with sucrose synthase activity. Specifically, the Examiner pointed to the lack of guidance for any modification to SEQ ID NO: 1 that resulted in the polynucleotides of claim 1, parts (a), (c), (d), and (g).

As indicated earlier, parts (c), (d) and (g) of claim 1 has been omitted. Applicants further assert that sufficient guidance has been provided for isolation of polynucleotides showing at least 80% sequence identity as in part (a) of claim 1. Such sequences are verified using the GAP algorithm under the default parameters. Further, the polynucleotide in part (d) is one that selectively hybridizes, under specified conditions to SEQ ID NO: 1 or 11. It is readily apparent, based on the respective limitations recited, to one skilled in the art how the polynucleotides are obtained and what the scope of the invention is.

Further, the structure and function is provided by virtue of 95% identity to the structures disclosed in the claims. Applicants, by virtue of structural limitations present in the claims have adequately defined the invention to a scope that bears a reasonable correlation with the scope of enablement. As practiced according to the claim language, no undue experimentation is needed for one skilled in the art to practice the claimed invention.

Applicants have carefully drafted claims to sequences consistent with the scope of the specification, unlike what the Examiner described as "any analog thereof" to the few gene sequences disclosed. However, in an effort to expedite prosecution Applicants have amended claims 1 and 11 to require 95% identity to the structures disclosed in the specification.

Written Description

Claims 1-11 and 13-21 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner contends that the claims to the polynucleotides are genus

claims and that the instant application failed to achieve a description of such a genus for lack of description of functional domains, structural and functional variants of sucrose synthase, and examples of such variants.

Amended claim 1 removes parts (c), (d) and (g) which relates to a polynucleotide using primers, a polynucleotide under high stringency hybridization conditions and a wash and a polynucleotide having at least 50 contiguous nucleotides from a polynucleotide of (a), (b), or (c). Amended claim 1 is expressly directed to a polynucleotide with sucrose synthase activity. It would be unreasonable for the Examiner to require Applicant to supply functional domain data when the claim language clearly delineates the scope of the invention.

The Examiner is directed to the citation shown on the bottom of page 9 of the Office Action, where the Examiner cited *University of California v. Eli Lilly and Co.*, 43 USPQ2d 1398 (Fed. Cir. 1997). The Court stated in the above cited decision that "[a] description of a genus of cDNA may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus." Obviously, the Court contemplated two ways of satisfying the genus description requirement.

First, when structural features are available, such as the 95% sequence identity to SEQ ID NOS: 1 or 11, the description of such features common to the members of the genus satisfies the description requirement.

Secondly, the genus description requirement could alternatively be satisfied when the inventor discloses a representative number of sequences within the claimed genus. Applicants have disclosed representative sequences (SEQ ID NOS: 1 and 11) and thus have satisfied the genus description requirement.

In light of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejections to claims 1-11 and 13-21 under 35 U.S.C. §112, first paragraph.

Claim Rejections Under 35 U.S.C. §102

Claims 13, 16-17 and 20 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hesse *et al.* (US Patent No. 5,866,790). The Examiner cites a "sucrose synthase (SEQ ID NO: 5 and 6)" in the Hesse *et al.* reference as anticipating the instant invention.

The claimed invention teaches a method to manipulate cellulose concentration in the cell wall and to alter grain quality and/or plant stalk quality, which is not taught or suggested in the cited item (see specification page 7). Because of the fundamental difference in the objectives and claims involved in the instant invention and the cited item, Applicants respectfully request that the Examiner withdraw this ground of rejection.

The Examiner also rejects claims 1-11 and 13-14, 16-18, and 20-21 under 35 U.S.C. §102(e) as being anticipated by Cheikh *et al.* (US 20030135870, filed 26/01/1999). The Examiner cited an EST fragment that showed homology to SEQ ID NO: 11 over a 255 nucleotide span.

Claim 1 has been amended to eliminate part (g), which embodies a polynucleotide having at least 50 contiguous bases. Therefore, Applicants assert claim 1 is distinguished from the cited item and the anticipation rejection should be withdrawn.

In addition, the Examiner notes that there are attached Sequence Search Results on page 11 of the Office Action.

Applicants did not receive said Search results and respectfully request a copy be sent to Applicants for our records.

In light of the above, Applicants respectfully request the Examiner withdraw the rejection under 35 U.S.C. §102(b) as anticipated by Hesse *et al.* (US Patent No. 5,866,790) and under 35 U.S.C. §102 (e) as anticipated by Cheikh *et al.* (US 20030135870, filed 26/01/1999).

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Summary

Applicants note, with appreciation, that the Examiner has deemed the polynucleotide of SEQ ID NO: 1 and 11 and the polynucleotides encoding SEQ ID NO: 2 or 12 free of the prior art.

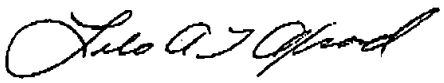
CONCLUSION

In conclusion, Applicants submit in light of the above amendments and remarks, the current claims are in a condition for allowance, and reconsideration is respectfully requested. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

This is a request under the provision of 37 C.F.R. §1.136(a) to extend the period for filing a response in the above-identified application for one month from September 30, 2004 to October 30, 2004. Applicants are a large entity; therefore, please charge Deposit Account No. 16-1852 in the amount of $110.00 for one month to cover the cost of the extension. Any deficiency or overpayment should be charged or credited to Deposit Account 16-1852.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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